Appendix D

Movement and Rapid Deployment

FUNDAMENTALS

D-1. If scheduled to refuel every 150 nautical miles, the squadron can self-deploy aircraft, personnel, and equipment from CONUS stations to almost any place in the world, which allows other transport assets to be used more efficiently. Units that plan, train, and validate their movement plans greatly increase their chances of success. The more knowledgeable personnel are of movement plans and operations, the more efficient the move becomes. Detailed unit movements information is found in the manuals referenced in paragraph D-10.

D-2. Unit deployment training is necessary if the squadron is to move in the most efficient manner. If it cannot move within its operational requirements, whether it deploys from CONUS or 3 km on the battlefield, the success of the mission is jeopardized.

D-3. The squadron is only as effective as its logistics support. Equipment used to support and sustain the unit is organic. To facilitate rapid response, effectiveness, and sustained operations, logistics support must be transported using the unit's organic equipment. Therefore, units must be organized with the necessary assets to transport their logistics support in a single move.

D-4. The unit must give careful consideration to prestocking shipping containers for aircraft components and covers. This ensures that items are available and precludes delays in unit deployment. As units prepare to on- and/or off-load aircraft and equipment; ground-handling equipment should be available to save time. Fulfilling the requirement for tools and test equipment at the ports of embarkation and debarkation also results in more effective unit movements.

RESPONSIBILITIES

COMMANDERS

D-5. Commanders are responsible for the movement of their unit personnel and equipment. They also—

- Appoint a unit movement officer (and train him).
- Supervise the operations of subordinate units.
- Establish policies for rail, air, and sea lines of communication.
- Ensure compliance with directives, policies, and regulations.
- Review and validate movement plans, SOPs, and load plans frequently.

- Coordinate with other headquarters for technical data and logistics support.

STAFFS

D-6. Staffs ensure compliance with the commander's directives and develop unit movement plans. They also—

- Plan and supervise unit movement training.
- Make recommendations for improvement to the commander.
- Establish training programs for unit movement personnel.
- Determine and coordinate logistics support requirements.
- Ensure compliance with directives, policies, and regulations.
- Ensure that subordinate unit movement plans, load plans, and SOPs are accurate and current.

UNIT MOVEMENT PERSONNEL

D-7. Unit movement personnel plan and conduct unit moves. They also—

- Develop unit movement plans, SOPs, load plans, and ensure the DEL maintained in the TC ACCIS is reviewed and current.
- Conduct unit movement training.
- Ensure that proper support and logistics requirements are requested.
- Validate movement plans.
- Inspect and inventory equipment before and after a unit movement.
- Ensure proper preparation of personnel and equipment before a unit movement.

PLANNING AND PREPARATION

D-8. The squadron must plan and prepare to arrive at a designated location in the AO and begin battlefield missions. Modes of movement and deployment are designated in orders. These orders are delivered in several formats such as an OPORD, a FRAGO, or a movement order. Because of the complexity of unit movements, the movement order is preferable. Movement orders provide detailed information such as transportation support, movement tables, and clearance numbers. The least preferred format is the FRAGO. The information below will assist planners in preparing movement directives and SOPs.

MOVEMENT DIRECTIVE

D-9. The movement directive, published by DA, is the basic document that directs units to prepare to and move from home stations. The two types of moves are administrative and tactical. In an administrative move, enemy contact is not likely and units relocate to secure areas and ports of embarkation. The S4 has staff responsibility for administrative movements. A tactical move, however, requires a combat-ready posture and organization during all phases even though the purpose of the move is to relocate only.

The G3 or S3 has staff responsibility for tactical moves. Movements are categorized as follows:

- Category A is a move from a home station with all the equipment authorized for that unit.
- Category B is a move from a home station with essential equipment only.
- Category C is a move from a home station with less than essential equipment. (The movement directive will specify what equipment to take.)

MOVEMENT INSTRUCTIONS

D-10. Movement instructions provide details for the execution of a movement. They are issued to implement the movement program and represent accepted procedures.

MOVEMENT ORDER

D-11. The movement order directs the movement of personnel and prescribed equipment from one location to another within a stated period.

MOVEMENT PLAN

D-12. The movement plan provides up-to-date logistics data. These data reflect a summary of transportation requirements, priorities, and limiting factors incident to the movement of one or more units or special grouping of personnel by highway, marine, rail, or air transportation. Movement plans are covered in FM 101-5.

LOAD PLAN

D-13. The load plan is a preplanned method for loading personnel and equipment for transport.

DEPLOYMENT

D-14. The ITO, in coordination with the UMO, must clear unit cargo and equipment with the USTRANSCOM TCC by providing advance data before actual movement to the POE can begin. This procedure allows the TCC to coordinate movement and reception planning within the POE. Advance data are maintained within the Army's TC ACCIS. Priority must be given to ensuring predeployment maintenance of the DEL to allow timely and accurate transmission of these data by the UMO in conjunction with the ITO requirements for deployments and transportation as specified in the DTR and MILSTAMP.

D-15. Command authorities may determine that selected squadrons should self-deploy, and these units must be prepared for that eventuality. Because airlift and sealift assets are limited, selected squadrons should plan to self-deploy. UH-60 and AH-64 aircraft will be equipped with the necessary fuel, ALSE, and navigation and communication systems needed to conduct self-deployment operations. They will move from CONUS stations to designated departure points where the preparation of the aircraft will occur. Pre-

stationed ground and aerial support and maintenance teams provide stopover point assistance. When self-deployed flights arrive at destination points, ferry equipment will be removed and arrangements made for its return and reuse. Self-deployment applies only to aircraft transferred when other transportation assets are not provided, and these aircraft may provide the transport of a small amount of equipment and/or personnel. The command structure must integrate self-deploying aircraft and crews into the theater of operations. This will expedite the availability and effectiveness of these aviation assets at their operational area.

AIRLIFT

D-16. An airlift is an operation executed according to prepared plans designed to ensure air transport of supplies. The movement plan requires that the squadron be able to package and document both equipment and personnel. The mobile capability of the on- and off-load, and tie-down equipment. Therefore, the squadron must be trained not only in mission accomplishment but also in the skill and execution of airlift deployment. Emergency situations require rapid response by the armed forces; air movement fulfills that requirement.

D-17. The MAC provides the strategic air assets necessary to move personnel and materiel during emergencies or for operational necessities. Although MAC aircraft are located around the world, they are limited in number and availability. Equipment accepted on MAC aircraft must be within specified space and weight limits.

D-18. The unit movement officer is the key to exercising the unit's movement and loading plans. He supervises and conducts training and maintains updated movement data. Because operational requirements may exceed the airlift capacity, the unit movement officer also plans for the use of other types of transportation to conduct the air movement. Detailed information on unit movement planning is in FM 55-9.

D-19. Specific planning and support requirements for each unit vary. In an emergency, little time is available for planning. Therefore, the unit movement officer routinely identifies requirements and develops and validates exercise plans to preclude difficulties.

RAIL MOVEMENT

D-20. The division or installation transportation officer or DISCOM movement control officer assists movement officers' plan and identify unit rail-loading requirements. He provides training material and current procedures for transporting equipment as well as other information to minimize planning time.

D-21. When available, rail shipment is used to move heavy and outsized items to the POE. Rail shipment can damage sensitive aircraft components; therefore, this type of equipment must be airlifted.

D-22. As with other forms of movement, the aviation unit is responsible for internal administration and preparation of unit assets for rail movement. Plans and SOPs will address all rail requirements such as loading, tie-

downs, organization, and specific safety provisions. Rail movement plans are completed as required by the controlling transportation agency.

D-23. The information in FM 55-20 will assist the unit movement officer in planning and preparing equipment for rail transport. This manual also provides background information on special movement requirements imposed by foreign countries.

SEALIFT

D-24. Because of the many types of merchant vessels, units can perform only minimum sealift planning and training. Planning and training is limited to on-site surveys and data about the out-loading installation, POEs and PODs and, to a limited extent, vessels that are likely to be employed. The deploying unit will have to prepare accurate cargo-loading movement data. However, HHQ should provide guidance and assistance in sealift planning (See FORSCOM Reg 55-1).

ROAD MARCH

TYPES

D-25. The movement of troops from one location to another is inherent in any phase of a military operation. A common form of troop movement is the road march. Road marches may be tactical or nontactical, depending on the enemy situation.

Tactical Movement

D-26. When contact with the enemy is possible, a unit will conduct a tactical movement. For example, if troops move forward to participate in combat operations, the movement is tactical. The S3 plans tactical movements.

Nontactical Movement

D-27. If contact with the enemy is unlikely, a unit will conduct a nontactical movement. Movement in the COMMZ to reposition laterally or to ease future operations is nontactical. The S4 may plan nontactical movements.

ORGANIZATION

D-28. March columns are organized to maintain unit integrity. In a tactical march column, all elements use the same route for a single movement and are under the control of a single commander. A large column may be composed of a number of subdivisions.

D-29. **Serial**. A serial is a major subdivision of a march column. For purposes of planning, regulation, and control, it is organized as a single unit under one commander. A squadron is usually comprised of one serial.

D-30. **March Unit.** A march unit is a subdivision of a serial and is normally a squad, section, platoon, or troop. It moves and halts under the control of a single commander, using oral and visual signals. A radio is used only when

no other means of communication can be used. March units of the main body are composed of individual units, any attachments, the battalion main CP, and the battalion trains. POL vehicles required for refueling during nontactical marches may move ahead of schedule to establish a forward refueling point.

D-31. March columns, regardless of size, are composed of four elements. These elements are the reconnaissance party, the quartering party, the main body, and the trail party.

PLANNING PROCESS

D-32. Tactical road marches require extensive planning. Commanders and staffs use the estimate process to determine how to best execute a move from one point to another. Road-march planning consists of three concurrent steps. These steps are to determine requirements for the move, analyze organic and nonorganic movement capabilities, and establish unit movement priorities. During movement planning, the squadron commander and staff must consider the following:

- Enemy situation and capabilities, terrain conditions, and weather.
- Organization of the squadron.
- Security measures to be taken before the movement, during movement, and at the destination.
- Assembly of the march units.
- Loading of personnel and equipment.
- Actions at the destination.

D-33. When the squadron prepares for a tactical road march, the sequence of planning for the march (if time permits) is the following:

- Prepare and issue an oral warning order as early as possible to allow subordinates time to prepare for the march.
- Prepare an estimate of the situation, analyze routes designated by the brigade, and specify the organization of the march serial.
- Prepare and issue the march order.
- Prepare detailed movement plans and AA plans.
- Organize and dispatch reconnaissance and quartering parties as required.

PLANNING FACTORS

D-34. Planners apply movement formulas to known distance, rate, and time data to derive information necessary to prepare a time schedule. The time schedule requires departures and arrivals of march elements.

Time and Distance Relationships

D-35. Relationships between time and distance are the basis for march planning. Planners determine how far the column is to travel (distance) and how long it will take to make the move (time). They must also know how much space (length of column) the column will occupy on the route and the distance (road gap) or time (time gap) that separates march columns and

their elements. Each term used for distance has a corresponding term for time. The length of a column in kms has an equivalent PST in minutes; the road distance in kms or miles has a corresponding time distance. Relationships between time and distance in the average rate of march are shown in Figure D-1.

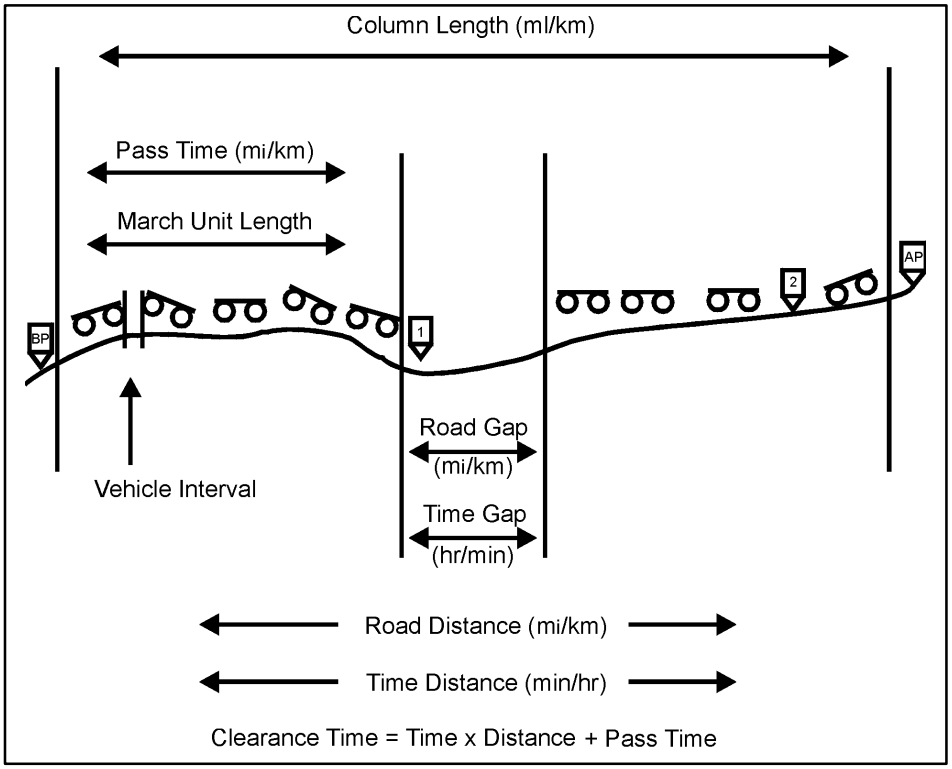

Figure D-1. Time and Distance Relationships

Distance Factors

D-36. Distance factors include vehicle interval, column gap, traffic density, column length, and road gap. These factors are defined below.

D-37. **Vehicle interval** is the distance between two consecutive vehicles of an organized element of a column.

D-38. **Column gap** is the space between two organized elements following each other on the same route. It can be calculated in units of length (road gap) or in units of time (time gap) as measured from the rear of the leading element to the front of the following element.

D-39. **Traffic density** is the average number of vehicles that occupy 1 mile or 1 km of road space, expressed in VPM or VPK.

D-40. **Length of a column** is the length of roadway occupied by a column, including gaps in the column measured from the first vehicle to the last vehicle.

D-41. **Road gap** is the distance between two march elements. It is the length aspect of the column gap. Since a road gap is more significant when the column is moving than when the column is halted, it becomes a factor of time rather than distance.

Rate Factors

D-42. Speed, pace, and rate of march are rate factors. The definitions of these factors are listed below.

D-43. **Speed** is the velocity of a vehicle at a given moment as shown on the speedometer (in KMPH or MPH).

D-44. **Pace** is the regulated speed of a column or element. It is set by the lead vehicle or an individual in the lead element to maintain the prescribed average speed.

D-45. **Rate of march** is the average number of miles or kms traveled in any given period. It includes short periodic halts and other short delays. The rate of march is expressed as miles or kms traveled in an hour.

Time Factors

D-46. Time is expressed in hours or minutes. The following terms are used to describe time factors:

D-47. **Pass time** (or time length) is time required for a column or its elements to pass a given point on a route.

D-48. **Time space** is time required for a column or its elements to pass any given point on a route plus any additional time (safety factor) added to the PST.

D-49. **Time gap** is time measured between vehicles, march units, serials, or columns as they pass a given point. It is measured from the trail vehicle of one element to the lead vehicle of the following element.

D-50. **Time lead** is time measured between individual vehicles or elements of a column, measured from head to head, as they pass a given point.

D-51. **Time-distance** is time required to move from one point to another at a given rate of march. It is the time required for the head of a column or any single vehicle of a column to move from one point to another at a given rate of march.

D-52. **Road clearance time** is total time required for a column or one of its elements to travel the road distance and clear a point along the route or the RP. Road clearance time equals the column's PST or time space plus time distance.

MOVEMENT FORMULA APPLICATION

This paragraph implements portions of STANAG 2041.

D-53. Distance, rate, and time are the basic factors for movement computations. If the march planner knows two of these factors, he can easily

determine the third by dividing or multiplying one by the other. The movement formulas areas follows:

- Determine rate by dividing distance by time: $R = \frac{D}{T}$.
- Determine distance by multiplying rate by time: $D = R \times T$.
- Determine time by dividing distance by rate: $T = \frac{D}{R}$.

D-54. The march planner must determine time-distance, PST, arrival time, and completion time. The procedures for determining these factors are given below.

D-55. **Time-distance**. TDIS is determined by dividing distance to be traveled by rate of march, as shown in Figure D-2. TDIS does not include time for long delays or extended scheduled halts. A TDIS table (Table D-2) is a valuable tool to the march planner. It provides a listing of factors used to calculate the time required to travel certain distances at specified speeds. Travel rates are expressed in speeds and corresponding rates of march. Travel factors are derived from rate of march, which includes time for short, periodic halts and other minor delays that might occur.

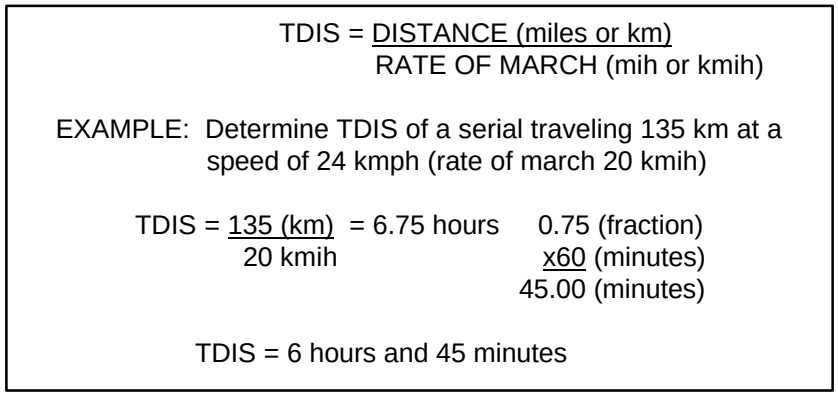

Figure D-2. Time-distance Formula

Table D-2. Time-distance Table

SPEED (miles/kmph)	RATE OF MARCH (miles/kmph)	MINUTES TO TRAVEL 1 KILOMETER	MINUTES TO TRAVEL 1 MILE
10 mph 16 kmph	8 mih 12 kmih	5	7.5
15 mph 24 kmph	12 mih 20 kmih	3	5
20 mph 32 kmph	16 mih 25 kmih	2.4	3.75
25 mph 40 kmph	20 mih 32 kmih	1.84	3
30 mph 48 kmph	25 mih 40 kmih	1.5	2.4
35 mph 56 kmph	30 mih 46 kmih	1.3	2
40 mph 65 kmph	33 mih 53 kmih	1.13	1.8

D-56. **Pass time**. PST for a serial is determined by adding march unit PSTs together, including time gaps between march units (Figure D-3).

$$PST = \frac{\text{NO OF VEH} \times 60}{\text{DENSITY} \times \text{SPEED}} + \frac{\text{N0. OF VEH}}{25} = \text{TIME GAPS (Min)}$$

EXAMPLE: Determine PST of a serial of 150 vehicles organized into 6 march units of 25 vehicles each, traveling at a speed of 24 kmph, with a density of 15 VPK or VPM, and using a 2-minute time gap between march units.

$$PST = \frac{150 \times 60}{15 \times 24} + \frac{150}{25} + (2 \times 5) = \frac{9{,}000}{360} + 6 + 10 = 25 + 6 + 10$$

PST = 41 minutes

NOTES: 1. Round off fractions of minutes to next higher minute.

2. EXTAL is allocated based on 1 minute per 25 vehicles added to serial PST. EXTAL is equitably added to PST of each march unit in the serial.

Figure D-3. Pass Time Formula

D-57. **Arrival Time**. In march planning, the RP is normally designated as the terminal point of movement. Arrival time at the RP is determined by adding TDIS and any scheduled halts to the start-point time (Figure D-4).

	HOURS	MINUTES
SP TIME	08	00
TIME-DISTANCE	06	45
SCHEDULED HALT	01	00
	15	45
ARRIVAL TIME IS 1545 HOURS		

Figure D-4. Arrival Time Formula

D-58. **Completion Time**. Completion time is calculated by adding PST to the arrival time or by adding to the start-point time the distance, PST, and any scheduled halts.

MARCH ORDER

D-59. The march order format is the same for tactical and nontactical movements. The march order is prepared either as an annex to an OPORD, a separate OPORD, or a FRAGO. Figure D-5 shows an example of an OPORD for a road march.

D-60. The march order should include, as a minimum, a strip map. A strip map is a sketch of the route of march. It is normally included as an annex to the march order. Figure D-6 shows an example of a strip map. The amount of detail on the strip map depends on its intended purpose and the unit level at which it is prepared. The map should identify critical points, start-point and release-point times and locations, order of march, maximum catch-up speed, distances to be maintained between vehicles and units, AA locations, and instructions on future operations. In designating distance (interval) or density, the planner must know its effect on column length and the time required to move.

D-61. The march order also contains a statement of the enemy situation, the weather, and visibility conditions. It should also contain the following (if applicable):

- Road restrictions and information derived from route reconnaissance.
- Actions on enemy contact (ground and air).
- Actions at halts and actions for disabled vehicles.
- Actions in the AA.

- Procedures for resupply, maintenance, and feeding.
- Location of leaders and a communications plan.

D-62. Much of the information needed to conduct the march should be in the unit SOP. Only exceptions to the SOP should be stated in the march order.

(Classification)

Copy no __ of __ Copies
112th Air Cav Squadron
GAY (GL645745)
211600Z Aug 19

EEL

OPORD 31
Reference: Map, JOG, NH 16-2, 1:250,000, 1st Edition.
Time Zone Used Throughout the Order: ZULU

Task Organization: Annex B (Road Movement Table).

1. Situation.
   a. Enemy Forces. Current INTSUM.
   b. Friendly Forces. Aviation Brigade moves 221000Aug to AA vicinity FARGO (GN7512).

2. Mission. 112th squadron moves to AA vicinity FARGO (GN7512); SP (GL6672) 221159 Aug; closes on the AA by 221930 Aug.

3. Execution.
   a. Concept of Operation. Annex A (Route Overlay). I intend to close AA during daylight. BN conducts a motor march, in six march units via Route RED, first march unit crossing SP at 221159 Aug and last march unit clearing the RP, vicinity FARGO, by 221830 Aug.
   b. March Unit 1:
   c. March Unit 2:
   d. March Unit 3:
   e. March Unit 4:
   f. March Unit 5:
   g. March Unit 6:
   h. Coordinating Instructions.
      (1) Annex B (Road Movement Table).
      (2) Quartering party assemble at Main CP at 220900 Aug.
      (3) Vehicle density: open column; 12 vehicles per kilometer.
      (4) Rate of march: 24 kilometers per hour.
      (5) Time gap: Five minutes between march units.
      (6) Vehicle bumper markings will be covered.

4. Service Support.
   a. Supply. Each man draw two MREs at breakfast for noon and evening meals on 22 Aug.
   b. Services. Trail party TF control.

(Classification)

Figure D-5. Sample Format for a Road Movement Order

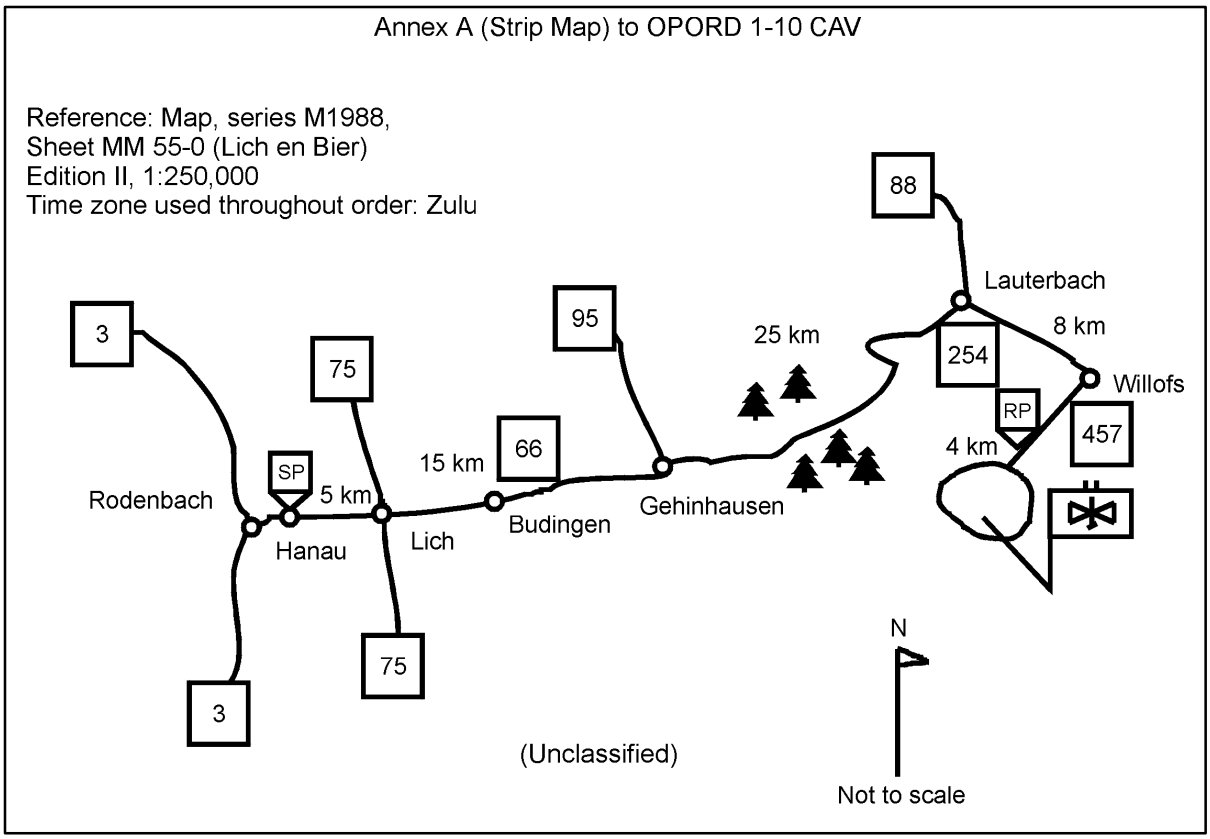

Figure D-6. Strip Map

ROAD MOVEMENT TABLE.

D-63. A road movement table is normally an annex to a movement order as shown in Figure D-7. It is a convenient means of transmitting to subordinate units time schedules and other essential details of the move. It is particularly useful when the inclusion of such details in the OPORD would make the order complicated or unduly long. Road movement tables consist of two parts. The first part contains data paragraphs that reflect information common to two or more march elements. The second part contains a list of serials or march units along with all other necessary information arranged in tabular form.

D-64. The march planner must know the times at which serials and march units arrive at and clear critical points. Other information in the road movement table includes serial or march unit number, date of move, units involved, number of vehicles, and load class of the heaviest vehicle routes to be used. A remarks section should reflect any details not covered elsewhere.

(Classification)

Annex B (Road Movement Table) to OPORD 31
Reference: Map, JOG, NH 16-2, 1:250,000, 1st Edition.
Time Zone Used Throughout the Order: Zulu.

General Data:

1. Average Speed: 24 kilometers per hour.

2. Traffic Density: 12 vehicles per hour.

3. Halts: 1545-1645, meal and fuel; all others SOP.

4. Critical Points: Route RED.
   a. SP: BOLL WEEVIL (GL6672).
   b. RP: FRAGO (GN7512).
   c. Other critical points: COLUMBIA (GL6979), NIAGARA (GL6893), and BOSTON (GN7106).
   d. Route Classification: 10X50.
   e. Route Restriction: None.

5. Main Routes to SP: NA.

6. Main Routes to RP: NA.

(Classification)

Figure D-7. Sample Format for a Road Movement Table

MARCH PROCEDURES

Reconnaissance Party

D-65. A squadron, augmented by engineer and other CS assets, conducts a route reconnaissance to determine travel time, capacities of underpasses and bridges, and locations of ferries and fords. Route reconnaissance confirms and supplements data from map studies, HHQ, and air reconnaissance.

Quartering Party

D-66. The quartering party consists of the quartering parties of each of the companies. The commander dispatches a quartering party to reconnoiter the new area and guide march elements into position.

Main Body

D-67. Before starting a march, each march unit of a serial reconnoiters its route to the SP and determines the exact time required to reach it. The movement order states the time that the serial will arrive at and clear its SP. The serial commander then determines and announces the times for march units of his serial to arrive at and clear the SP. Arrival time at the SP

is critical. Each march unit must arrive at and clear the SP on time; otherwise, movement of other elements may be delayed.

D-68. During the movement, march units move at the constant speed designated in the order, maintaining proper interval and column gap. Elements in a column of any length may simultaneously encounter many different types of routes and obstacles. As a result, different parts of the column may move at different speeds at the same time. This can produce an undesirable accordion-like action or "whip effect." The movement order gives march speed, rate of march, and maximum catch-up speed to ensure safety and to reduce column whipping. March units report crossing each control point as directed by the march order. During the move, air and ground security are maintained.

Trail Party

D-69. The trail party is normally made up of elements of the HHT maintenance platoon and is the last unit in a TF serial. The squadron movement officer leads the trail party. Its function is to recover disabled vehicles. If a vehicle cannot be repaired or towed, the vehicle and its crew are moved off the road into a secure area. Crewmembers are given sufficient food and water and left with the vehicle. When vehicles are left behind, the BMO reports their locations and the reason they were left behind to the TF S4. Once the trail party completes the road march, maintenance priority becomes recovery of disabled vehicles. A tactical road march is not complete until all march units and vehicles arrive at their destination.

MARCH TECHNIQUES

Close Column

D-70. In a close column, vehicles are spaced about 20 to 25 meters apart during daylight hours. At night, vehicles are spaced so that each driver can see the two lights in the blackout marker of the vehicle ahead. A close column is normally used for marches during the hours of darkness under blackout driving conditions. This method of marching takes maximum advantage of the traffic capacity of the route but provides little dispersion. Normally, vehicle density is about 30 VPK along the route.

Open Column

D-71. In an open column, the distance between vehicles is increased to provide greater dispersion. The distance between vehicles varies from 50 to 100 meters, but may be greater if required. An open column is normally used during daylight. It may also be used at night using IR lights, blackout lights, or passive night-vision equipment. Vehicle density varies from 10 to 15 VPK.

Infiltration

D-72. During a move by infiltration, vehicles are dispatched individually, in small groups, or at irregular intervals at a rate that will keep the traffic density down and prevent undue massing of vehicles. Infiltration provides the best possible passive defense against enemy observation and attack. It is

suited for tactical marches when sufficient time and road space are available and when maximum security, deception, and dispersion are desired.

CONTROL MEASURES

Critical Point

D-73. Critical points on a route are those points used for reference in providing instructions, places where interference with movement might occur, or places where timing might be a critical factor. The route reconnaissance report or a map study should provide the march planner with information to designate critical points along the route of march and distances from one critical point to another. At designated critical points, guides or signs may be used to ensure the smooth flow of traffic. The convoy commander may want to be present at the passing of some critical points. The SP and RP are two critical points that are always designated. Using the checkpoint symbol, critical points are designated by number, letter, or code word. The march planner must ensure that designations for critical points do not conflict with those of checkpoints.

Start Point

D-74. SPs provide all units of a march column a common point for starting their movement. When units use more than one route, each route has a SP. The SP is a place along the route of march that is easily recognizable on the map and on the ground such as a road intersection. An SP should be far enough from AAs to allow units to organize and move at the prescribed speed and interval when they reach the SP. No element of a march column should be required to march to the rear or through another unit to reach the SP.

Release Point

D-75. RPs provide all units of the march column a common point at which to reestablish control of their parent unit. The RP should be on the route of march and easily recognizable on the map and on the ground. Units do not stay at the RP. Guides meet units as they arrive at the RP and lead them to the AA. Multiple routes and cross-country movement from the RP to AAs enable units to disperse rapidly. No unit should be required to countermarch or pass through another unit to reach its new position.

Strip Map

D-76. Copies of the strip map should be reproduced and distributed to all key personnel. The strip map should contain the SP and RP, restrictions, and critical points and the distances between them.

SECURITY

D-77. During the march, units maintain security through observation, weapons orientation, dispersion, and camouflage. Commanders assign sectors of observation to their personnel so that there is a 360-degree observation. Weapons are oriented on specific sectors throughout the column. The lead elements cover the front, following elements cover

alternate flanks, and the trail element covers the rear. Security is also maintained during halts.

D-78. Scheduled halts are planned along the march route for maintenance and rest or to follow higher level movement orders. At scheduled halts, vehicles and soldiers move to the side of the road while maintaining march dispersion. Local security is set up immediately, and drivers perform operational maintenance checks. However, the unit is ready to move at a moment's notice.

D-79. Unscheduled halts and actions may be caused by unforeseen developments such as obstacles, traffic congestion, or equipment failure. If a halt is necessary, the march column's first priority is to establish security. Each unit forms a hasty perimeter defense.

D-80. To minimize the squadron's vulnerability to enemy air attack, AD must be planned and AD security measures implemented. The convoy commander must effectively integrate his ADA assets into his fire plans and ensure that all passive and active AD measures implemented at company level are planned and used.

D-81. Each vehicle in a motor march has an air guard to provide air security. However, specific vehicles may be designated as air guard vehicles to conduct air rather than ground observation.

D-82. Obstacles that are reported by an aeroscout platoon should be bypassed if possible. If obstacles cannot be bypassed, the lead march unit goes into a hasty defense to cover and overwatch. If engineers are available to assist, the lead march unit can breach the obstacle. As the lead march unit breaches the obstacle, the other march units move at decreased speed or move off the road and monitor the battalion command net.

D-83. If the TF comes under attack by enemy indirect fire during the road march, the unit in contact continues to move. The remainder of the TF attempts to bypass the impact area (Figure D-8).

D-84. If the TF is attacked by hostile aircraft during the march, the march unit that is attacked moves off the road into a quick defensive posture and immediately engages the aircraft with all available automatic weapons. The rest of the convoy moves to covered and concealed areas until the engagement stops.

D-85. Ambushes are fought without delay. If the convoy is ambushed, the march unit in the kill zone increases its speed, fights through, and reports the ambush.

D-86. Disabled vehicles must not obstruct traffic; they are moved off the road and their status is reported immediately. Security is established and guides are posted to direct traffic. If the operator repairs the vehicle, he rejoins the rear of the column. If the operator cannot repair the vehicle, trail party maintenance elements recover it.

D-87. Messengers and visual signals are the preferred means of communication during road marches. Because the enemy has radio direction-finding equipment, the radio is used only in emergencies and when no other means of communication can be used. Road guides can also be used to pass

messages from one march unit to a following march unit. Because of the need

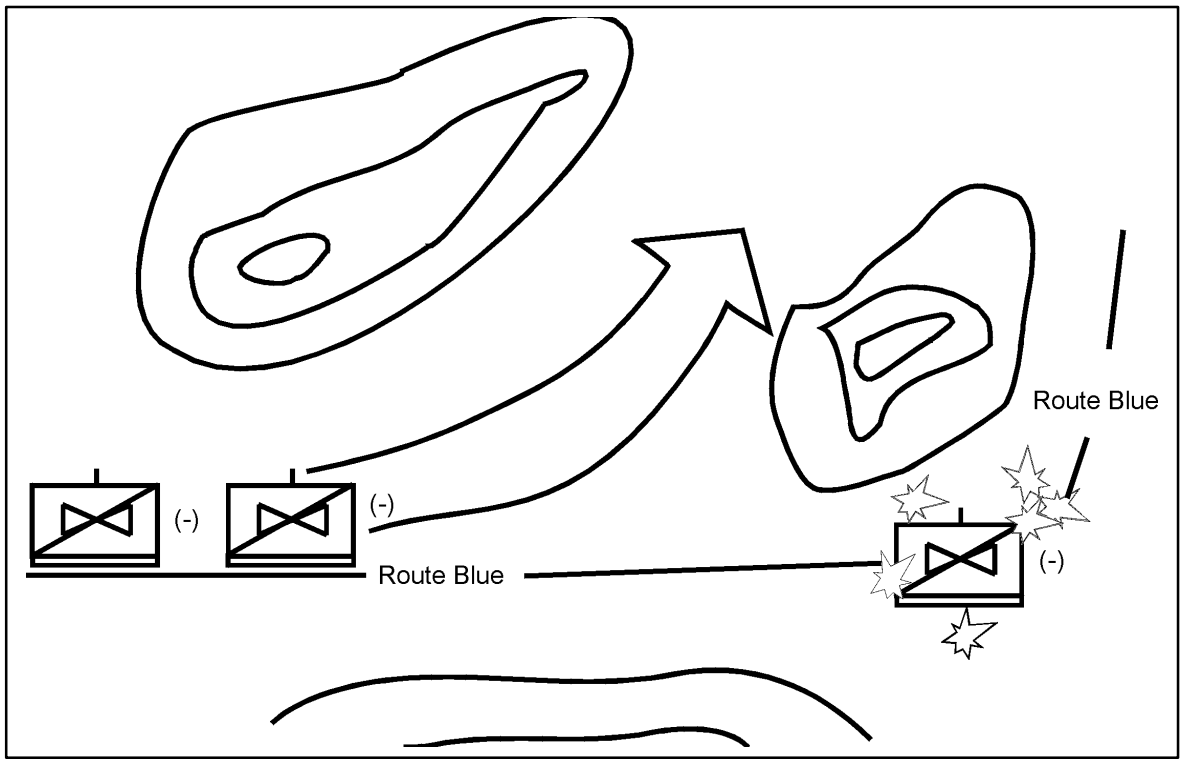

Figure D-8. Actions Under Indirect Fire

for radio silence, road guides are used to control the speed of march units and the intervals between them.

D-88. Restrictions are points along the route of march where movement may be hindered or obstructed. These points can include bridges, intersections, ferries, and bypasses. The march planner should stagger start times, adjust speeds to allow for restrictions, or plan to halt the column en route until the restriction is passed.

D-89. Units must be able to operate under limited visibility conditions caused by darkness, smoke, dust, fog, heavy rain, or heavy snow. Limited visibility decreases the speed of movement and increases difficulties in navigation, recognizing checkpoints, and maintaining proper interval between units. To overcome C^2 problems caused by limited visibility, convoy commanders may position themselves just behind lead elements. More restrictive control measures, such as additional checkpoints, PLs, and use of a single route, may become necessary.

D-90. The convoy commander also plans for an NBC attack. Some measures he takes are given below.

D-91. He ensures that protective and decontamination materials are properly distributed and their location known to the entire march unit.

D-92. He ensures that the proper MOPP level is maintained, based on the threat and the temperature level. Personnel may start out in modified MOPP 3 (according to FM 3-4) to avoid having to stop to change into MOPP 3 or MOPP 4 from a lower level of MOPP. However, when a high threat of CG agent use exists or when agents have been used on the battlefield, aircrews fly in MOPP 4.

D-93. He ensures that chemically or biologically contaminated areas are avoided if possible. If contaminated areas must be crossed, personnel will—

- Use MOPP 4.
- Cover as much equipment as possible.
- Avoid moving through underbrush.
- Stay on hard-surfaced roads.
- Avoid low areas.
- Avoid moving early or late in the day.
- Stagger vehicles in the column.
- Decrease speed to reduce dust or mud.
- Increase vehicle interval.
- Scrape the surfaces of dirt roads to clear them of contamination.

D-94. He ensures that nuclear contaminated areas area avoided, if possible. If nuclear contaminated areas must be crossed, personnel will—

- Wear modified MOPP 3 gear.
- Avoid stirring up dust as much as possible.
- Ensure that the IM-174 or AN/VDR-2 radiacmeter is used.
- Wet roads to minimize fallout dust, if feasible.

TRAINING

D-95. There are no special training requirements for unit movement personnel; however, some specialized courses are available. The Joint Military Packaging Center, Aberdeen Proving Grounds, Maryland, trains soldiers to prepare hazardous cargo for transport. Although not a training requirement, individuals who certify that hazardous cargo is properly prepared for shipment must be designated on orders to sign DD Form 1387-2, Special Handling Data/Certification. In addition, the US Air Force conducts the MAC airload planner courses, which trains unit movement officers to plan movements using USAF assets.

UNIT MOVEMENT REFERENCES

D-96. At a minimum, UMOs should maintain current copies of the following references for unit movements planning and execution:

- AR 55-29
- AR-55-113
- AR 55-162
- DOD 4500.9-R Part III

- Joint Pub 4-01.3
- FM 1-111
- FM 1-564
- FM 55-9
- FM 55-15
- FM 55-30
- FM 55-65
- TM 38-250
- TM 55-625
- TM 55-2200-001-12